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MODERN PLASTICS IN THE ARCHITECTURAL FIELD

by W. J. CONNELLY, Manager, Consumer Relations, Bakelite Corporation

My subject tonight deals with plastic materials and an ever-expanding industry which has, in a short span of years, become a major segment of the national economy.

The plastics industry is now geared to produce into finished goods, industry- and consumer-wise, a billion pounds of chemically made base materials.

Once, it was true that the plastics in use were of the button and gadget type. But research and technological progress are the levers by which the plastics industry has lifted itself into a prominent place in the industrial world of today.

In 1935, 70,000,000 pounds of plastic materials were produced; in 1947, 847,000,000 pounds were produced.

But the story of plastic materials is not a series of figures and statistics; neither should the story of modern plastics as applied to modern architecture be limited to a review of graphs, charts and tables. For one thing, it's a story without an apparent ending; new chapters are added every day.

Rather, plastics in the architectural field are best pictured by illustrating the man-made properties that have been formulated into the plastic materials through the technical skill of the chemists, the engineers and the designers.

It is important, before proceeding, to be sure we all have a clear picture of what we mean when we say "plastics" and "plastic materials."

The word "Plastics" is a highly misused, generic term that has many meanings to many people. Actually, it's like saying "metal" - and it's no more informative. Used by itself it is so broad that it is almost completely meaningless for practical purposes. As commonly used, it merely aids to distinguish the material as a product of synthetic, organic chemistry, rather than a natural material, such as wood or cotton. We must go further into the nomenclature before we can step on safe ground.

The plastics world is divided into two main parts: thermoplastic materials and thermosetting materials.

When the term "thermoplastic" is broken up into its two main derivatives, we find "thermo" and "plastic." "Thermo" means heat; plastic is workable. Because only a physical change takes place when heat is applied, the material can be worked while soft and when allowed to cool, it retains the shape it was given while soft. Because this is only a physical change, the process can be repeated.

On the other hand, thermosetting material sets or hardens upon heating. Thus, when a thermosetting plastic material is heated, a chemical change takes place within the material and it "sets" - once set, it cannot be changed back to its original state.

These are fundamental properties that govern the selection of plastic materials which, when properly utilized, serve the ultimate user to best advantage in their fabrication and correct application.

It is not our intention to try to cover all plastic materials that are in existence today - there are dozens of types, many of which number their applications in the thousands. Instead, we plan to give you a diversified picture of materials and properties of some of the outstanding products of the plastics world.

Some of these have already proved themselves in the architectural field, some are in fields closely allied and some have not yet been fully explored for architectural possibilities.

We do not propose to serve on this platform as the final authority on the use of plastics in the architectural and building fields. We do plan to lay before you some of the current outstanding developments and their properties. You, gentlemen, are the experts, you are the ones to decide how best they

can contribute to architectural progress.

Let us begin with an old established material, decorative laminate - illustrated quite well by means of my lecture unit here.

Today, with the accent on beauty and extreme durability in furniture design, materials such as Formica decorative laminated plastics made with BAKELITE laminating resin varnishes symbolize modern styling with their lasting "newness." Rich color...enduring finish...resistance to spilled beverages, cleaning compounds, water, and, in the cigarette proof grades to burning cigarettes....distinctive inlays of contrasting colors or metal....incorporation of rich, finely-grained common or rare veneers as the top surface sheets thereby effectively merging the beauty of wood with the durability of plastics.... unique luminescent effects....are features which have set up new standards of maintenance, economy, and wear resistance, and have fostered new thinking in modern decor. Architects and designers have already found wide application for these decorative and structural materials in hotels, hospitals, theaters, homes, and offices. They have introduced originality of design and beauty of color in counters, tables, benches, shelving, wainscoting, panelling, doors, window sills, and baseboards, with decorative possibilities virtually unlimited.

Basically, decorative laminated plastics are produced from BAKELITE thermosetting resin varnishes and special grades of paper, assembled under heat and pressure up to 1,500 p.s.i. to form a hard, dense, homogeneous material. Decorative laminates are available in more than 70 self-contained colors and finishes, including rare, beautiful wood veneers that become stain- and scuff-resistant when made an integral part of the plastic structure. Inlaid designs are an important feature of decorative laminated plastics. In producing such designs, silhouettes of the design elements are cut from a plastic coated sheet of a different color and positioned carefully in the top sheet of the assembly before the laminate is formed under heat and pressure. Multi-colored inlays are obtained by cutting certain shapes and segments for a design from sheets of different colors and arranging them for the effect desired. Metal and colorful fabric inlays may also be arranged in a limitless number of designs. This development has produced an extremely flexible medium of decoration.

In a somewhat related field, resin-bonded plywood wall panelling is an important factor in both interior and exterior house construction.

Research and engineering in this field by reputable organizations has evolved entirely new concepts of small home construction. "Cornerstone" of these new developments is a skeleton frame enclosed by stress-skin, box-girder panels that represent the combined efforts of industry and science to provide the maximum in living comfort.

This new-type wall section, consisting essentially of plywood panels glued to a frame with BAKELITE resin glue, serves for the interior surfacing as well as the exterior wall. In the production of these wall sections, three-ply exterior grade plywood panels, 3/8-inch thick, are secured with BAKELITE cold-setting resorcinol resin glue to framing members consisting of kiln-dried fir.

This is the type of resin glue that has been used in the bonding of beams, laminated lumber, exterior plywood, trusses, ships keels and aircraft sections.

This plywood construction is a weatherproof wood structure with exceedingly high strength. Exhaustive tests reveal that the strength of these panels under vertical load is more than eight times the traditionally accepted design load of 40 pounds per square foot.

In addition to wall panelling production, resin glues are widely used in these homes in the fabrication of plywood roof sheathing, ceilings, sub-flooring, flush panel doors, gable ends, and kitchen cabinets. Quality and precision are rigidly controlled in their production for each part is complete in itself, standardized and manufactured to the right size. Thus, the house can be manufactured as an assembly job without the customary waste factor.

This special wall construction in combination with steel framework and thermal-acoustical insulation for walls, floors, and ceilings, permits the building of complete one-story permanent dwellings. The design-engineering principle is flexible enough to provide for any floor plan, but for the present, however, only 4-1/2 room homes are being built.

By combining the two materials we have just described - paper laminates and plywood - we achieve plywood with a skin treatment. This special material consists of layers of special high strength paper treated with BAKELITE phenolic resin and fused to the surface of exterior grade plywood. Its greatest use to date has been in the construction of concrete forms. Its main advantages are traceable to the fact that it is very resistant to water, requires no separation while drying, minimizes surface checking of the wood and hides the wood grain. It makes for smoother concrete and is stripped easily from the "set" concrete. It has a lower ultimate cost due to its being re-used scores of times. One of the larger jobs on which this material has proved its effectiveness is the Jacob Riis Housing Project in New York City - 19 buildings, 12 stories high.

Now, let's go under the skin with this next material. Whereas we found plywood with paper surfacing one of the very newest of applications in the structural field, a special under surface treatment which might well radically affect the furniture and building industries is accomplished by inserting aluminum foil, bonded on both sides with a thin paper film treated with a special phenolic resin, in the plywood assembly just below the top veneer. The result - heat-resistant and heat-insulating veneers formerly so costly that only the highest priced custom work could produce them. But probably the most outstanding property of this new material is the creation of a perfect moisture barrier.

Changing the price of the plywood but a few cents a square foot, in comparison with the former more costly method of achieving this result with etched foil - this material promises to be one of the outstanding contributions of plastics in the furniture and structural wood field.

Let me give you a demonstration.

Finally, let us turn to this beautiful material. Harder than any solid wood....lighter than any solid metal....richer in grain and finish than any of nature's comparable materials. This is densified wood or compreg, a material that offers a union of the best qualities of both wood and plastic.

It is stimulating new ideas and opening up entirely new markets because it combines exceptional beauty, dimensional stability, toughness, and strength, in one of the most versatile materials known to industry. It is resistant to water, chemical attack, abrasion, scuffing, and temperature extremes, and it can be machined with modified wood-working equipment. Of special value is that machining will not destroy its beautiful finish and high gloss which is integral throughout the material's construction and can be restored by buffing.

While this might be considered a little far afield, since the talk applies to plastics in architecture, nevertheless, we believe this fishing rod will be of interest to you - engineeringly speaking - that is. These rods possess the desired flexibility, are virtually impervious to water and weather. The densified wood from which they are made is exceptionally strong, having a tensile strength of 30,000 pounds per square inch, and a flexural strength of 40,000 pounds per square inch!

Other applications now being evaluated for this material include parting boards for foundries and refractories, gymnasium flooring, marine decking, stair treads, doorsills, and bobbins and shuttles for textile equipment. Industrial flooring

requiring excessive wearing qualities is an important application for densified wood.

Compreg is a laminated material made from an assembly of resin-impregnated veneers that are highly compressed at the time of setting the resin. Depending upon the pressure used, the assembly will decrease during compression to approximately 50 per cent of its original thickness.

PROPERTIES OF DENSIFIED WOOD

(Average for a typical grade)

Specific Gravity	1.35
Rockwell Hardness, S-Scale	110
Modulus of Rupture, psi	49000*
Mod. of Elasticity, 10 ⁶ psi	4.3
Compressive Strength, psi	28000*
Shear Strength, Max. psi	3400
Izod Impact Strength, ft. lb./sq. in.	8

*Parallel to grain and laminae

You gentlemen are all familiar with paper bells, such as these. (Demonstrate) They are a common sight at Christmas time. What have they to do with plastics in the architectural field? Just this: the technique used to produce the accordion-like assembly of paper that resembles a bee's honeycomb was used in combining natural materials and synthetic plastic materials into this. This is "honeycomb" structural plastic, and it is the strongest structural material, considering the weight strength factor, ever available to industry. Here is a development with intriguing possibilities that has not been fully explored.

A fabric, phenolic resin-impregnated core, produced in a "honeycomb" design is heat-treated to set the thermosetting resin and give the assembly rigid properties. To the face and bottom, any one of a number of surfaces can be bonded with phenolic resin: decorative veneers, decorative laminate, or metal sheathing. This results in a light-weight, high strength panel whose performance is outstanding.

This panel is but a small section. They can be made 4 feet by 12 feet long in thicknesses ranging up to about 4 inches.

Here is a material that measures up to the exacting demands of strength, insulation, and weight factor that had previously - for the most part - barred the use of plastics in the structural field.

Another and even more recent development is Fiberglas panelling bonded with a polystyrene resin. In this case, batts of unoriented fibers of fiberglas are impregnated with polystyrene resin, compressed in presses and the result is paneling that is amazing for its mechanical strengths that are well up in the range of the lighter metals.

We might well stop here for a moment to clarify a point which has probably arisen in your minds. You may be saying to yourselves, "But what of these 'wonder' plastics we have heard so much about, all these things are using wood and glass and cotton?"

There, gentlemen, is a very important point. Plastics - are not cure-alls or ideal materials that are coming to ride rough-shod over the industrial world, replacing metals, wood and glass. It's true that they possess many outstanding properties in their own right, never achieved in natural materials and, in many cases, serve effectively alone as superior replacements as we will show later.

But synthetic plastic materials (and we can assure you, synthetic does not mean inferior) are man-made materials, "tailor-made" for two primary purposes today. First, they bring to industry properties never before achieved in natural materials that stand alone, and, second, they augment, assist and enhance natural materials and their properties for greater utilization.

That second reason has been pointed up in every application we have mentioned so far. Through plastic materials, natural

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In the absence of an editor, the April-May and this issue of the Bulletin have been edited by H. L. Palmer.

Illinois Society of Architects Architectural Students 1948 Awards

June 22, 1948 at the annual meeting the Society awarded medals to outstanding students of the Architectural Department, Navy Pier Division, University of Illinois.

First Medal - Roger Mellem, 714 Greenleaf Ave., Wilmette, Ill. Highest Point Score in Architectural Design and Class Honor Student in upper ten percent of all grades.

Second Medal - Samuel Footlik, 1163 E. 54th Place, Chicago, Ill. Outstanding in Architectural Design Point Score and Class Honor Student in upper three percent of all grades.

Third Medal - Richard Nevara, 3933 W. 66th Place, Chicago, Ill. Outstanding in Architectural Design Point Score and Class Honor Student in upper ten percent of all grades.

The Navy Pier Division, U. of I., is under the directorship of Prof. H. B. McEldowney.

Beaux-Arts Institute of Design Kenneth M. Murchison Award

The annual judging of the Kenneth M. Murchison award, a nation-wide competition sponsored by the Beaux-Arts Institute of Design, was held Saturday, June 26, at the University of Illinois' Navy Pier branch in Chicago.

The jury of 26 architects from the Chicago area chose the design submitted by Richard Nevara, a 19-year-old architecture student at the U. of I.'s Navy Pier school, as the first prize winner. Second place went to Marvin Goody, a sophomore at the University of Pennsylvania.

The designs judged had been assigned to architecture students throughout the country as part of their regular class work. The specifications called for the design of a small bank in a town of 60,000 population. The design included a simple plan, a front elevation, and an interior perspective.

More than 500 drawings were entered in the competition.

The jurors were in session Saturday from 10:30 a.m. to 6 p.m. They chose a first place winner, a second place winner, four first mention place winners, 11 first mentions, and 129 mentions.

Nevara, the first prize winner, titled his design, "A Small Bank in Arizona." The judges termed his design as one "equally adaptable for any type of climate."

Among the colleges and groups with entries receiving awards of mention or above were the University of Pennsylvania; Layton School of Art, Milwaukee; University of Notre Dame; Western Reserve University, Cleveland; Oklahoma A & M; University of Illinois, Urbana and Navy Pier, and the T-Square Club, Philadelphia.

The display of small bank designs was exhibited to more than 100 bankers in the Chicago area at a preview showing on June 29. The bankers generally agreed with the jury of architects in the award of the prize winning designs. A vice-president of a large Chicago bank remarked that "the designs show unusual originality and indicate the trend toward open-front construction." A suburban bank president commented that the displays were unique in the interior perspectives. He said, "I like the swing toward low counters and the general idea of moving the bank employees out where the public can see them. Many of these plans call for such a move. It makes for good public relations."

Following the viewing of the designs by the bank representatives the display was opened to the public on June 30. More than 300 visitors, among them many architects, visited the showing at the Navy Pier school.

Otto Teegen, chairman of the board of trustees of the Beaux-Arts Institute, came from New York to direct the judging. Professor H. B. McEldowney, head of the department of architecture at the Chicago Undergraduate Division, was in charge of arrangements.

The judgment of the small bank designs was the first time that the annual competition has been brought to a college campus.

New Head for Architectural Department, U. of I.

Turpin C. Bannister has been named head of the department of architecture at the University of Illinois and will come to Illinois September 1. He was Dean of the School of Architecture and Arts, Alabama Polytechnic Institute, Auburn, Ala.

The department of architecture of the University of Illinois is one of the largest in the country and was organized 80 years ago by the well known and beloved Prof. N. Clifford Ricker.

Dean Bannister, 44 years of age, was born in Lima, O. He attended Denison University where he received a B. S. degree in 1925; Columbia University, B. Arch. 1928, Harvard University, Ph. D., 1944. He did graduate study in the Institute of Fine Arts, New York University and in the Iranian Institute.

He has been dean and head of the department of architecture at the Alabama Polytechnic Institute since 1944 and also served as consulting architect at Alabama Polytechnic Institute.

Author of Introduction to Architecture (syllabus), 1932; New York State Architecture, in New York, the Empire State, 1942; The drama of Architecture, in Architecture, a Profession, a Career, 1945. Iron and Architecture is in preparation.

He is chairman of the Committee on Preservation of Historic Buildings of the A.I.A., member of the N. Y. Architectural League, Alabama Society of Architects, College Art Association and the Medieval Academy of America, past president of the Society of Architectural Historians, chairman of the Alabama Board for Registration of Architects, former president of the Alabama chapter, A.I.A. and director of the Alabama Society of Architects. He has been editor of the "Journal of the Architectural Historians," and the "Journal of Architectural Education."

Best wishes are extended to Prof. Bannister in his new position.

Illinois Society - April, May, June Meetings

The April meeting was held Tuesday the 27th of April in the clubroom of the Art Institute of Chicago. President Smith called the meeting to order with a large attendance looking forward to an interesting evening. Secretary Koenigsberg read the minutes of the March meeting and after other routine business the president introduced Mr. John E. Volkmann, Radio Corporation of America who came from Camden, New Jersey, to address the meeting. Mr. Volkmann is manager of the Theater Equipment Department and gave a most interesting and instructive talk. He had a portable system to illustrate many of the points made in his lecture and the General Radio Company furnished several pieces of apparatus used to measure sound including a sound level meter and sound analyzer.

Properties of sound waves were given and illustrated showing interference, and how some frequencies cancel and some aid each other. Echo and reverberation was illustrated and its effects noted. The blurring of both speech and musical sounds can be due to this defect.

From the phenomena of sound Mr. Volkmann went to the Acoustical design of rooms. The choice of site, the size of the room, and the shape of the room or studio, all are determining features in the selection and placement of the microphone and loudspeakers. Conditions differ indoors or in confined spaces to those found outdoors. The reverberation time depends directly on the intensity of the sound and the size of the room. Thus a room suitable for one sound such as speech may be unsuitable for certain music such as a band.

Many references were made to the following Bulletins all of which will prove of value to the architect in his studies of the proper design of the room as well as the kind and placement of absorption materials:

- (1) "Acoustic Recommendations for Small Combined Studio, Scoring Stage and Review Room," Instruction Book #IB-24337-1, prepared by RCA Victor Division, RCA, Camden, N. J.; (2) "Theatre Acoustic Recommendations," Technical Bulletin dated May 31, 1941, and prepared by Motion Picture Research Council, Hollywood, California; (3) "Sound Absorption Coefficients of the More Common Acoustic Materials," Letter Circular LC870 prepared by the U. S. Department of Commerce, National Bureau of Standards, Washington, D. C.; (3) "The Noise Primer," General Radio Company, 920 S. Michigan Ave., Chicago, Ill.

After giving these references a few items were stressed and both pictures and diagrams, some from these books, were shown. A few were room resonances, parallel surfaces, peaks and dips and hanging on effects. Small rooms were observed to be most apt to be difficult to handle. Absorbing material is bad for small rooms and the effect is not good.

Structural Resonances. Wood panel walls often are aid to correction especially for music.

Room Dimensions. Should not be in even proportion but in ratios of 1 to 1.25 to 1.6 and 1 to 2.5 is recommended for larger rooms. The Bulletin of Research Council of Academy of Motion Picture Arts & Sciences has a chart showing preferred room proportions. Proper proportions will stagger room resonance.

Shape of reflected surfaces. The use of various shapes in walls may be a factor in the matter of sound diffusion and with wood panels and sound diffusing room walls and ceilings are helpful in deflecting and dispersing the sound.

Sound absorption characteristics. Curved plywood dispersers cause the sound to spread over five times the angle as in a direct reflector.

Flat Untreated Surfaces: There are loud and dense spots that will give hollow effects. Concave surfaces should be avoided.

Materials. In addition to the plywood wall treatment the use of hangings, upholstered chairs, special plasters and tiles for absorption and in a general way one of the best all around materials recommended was a low density type board. This has the added values of heat insulation and structural use in some places as well as acoustical absorption.

Loud Speakers and Microphones. These should not be hid-

den but should be accepted as a functional requirement of the room not to be set into openings where they cannot operate freely. It is very important to know the size of the speaker before making the box to house it. The various types of microphones and their placement is the work of a specialist.

In closing and before an involved question and answer period Mr. Volkmann gave the following points to consider in design for better hearing through the public address system for strengthening or boosting sound in certain areas: 1. Size of studio commensurate with the size of orchestra; 2. Consideration of major proportions of room; 3. Avoid large parallel surfaces; 4. Where unavoidable, parallel surfaces should be shaped; 5. If polycylindrical surfaces are used they should be varied; 6. Wood panels are the best surfaces, varied in size and backed with rock wool; 7. Use carpets; 8. Use upholstered seats; 9. Studio walls, ceilings, and floors should be sound proofed; 10. Isolate all motors, air conditioning equipment and ducts. A vote of thanks was given to Mr. Volkmann. Those members who were unable to attend this meeting missed a real treat.

May 25, 1948 at 6:30 p.m. The Society held the regular monthly meeting in the clubroom of the Art Institute of Chicago. President Smith called the meeting to order and Secretary Koenigsberg read the minutes of the April meeting. Regular business was called up and disposed of in routine manner. President Smith then introduced Mr. W. J. Connelly, Manager, Consumer Relations, Bakelite Corporation, who spoke on "Modern Plastics in the Architectural Field" and demonstrated his lecture with samples. Because of the keen interest in the subject, Mr. Connelly's paper is published in its entirety in this issue of the Bulletin. The meeting was especially well attended and after a lively question and answer period a vote of thanks was extended to Mr. Connelly, the meeting adjourned with everyone agreed that they had profited by attendance.

The 51st annual meeting of the Society was held in the clubroom of the Art Institute of Chicago, Tuesday, June 22, 1948. The meeting was called to order at 7:00 p.m. by President Smith after a delightful and much enjoyed social hour. Members, their ladies and guests assembled at 6:00 p.m. With a good champagne punch bowl and many friends the hour before the dinner served to renew friendships of long standing.

After the remarks by the president the meeting proceeded with reports of committees: H. L. Palmer, Membership, reported an increase; William Paul Fox, Legislative, reported on legislation concerned with proposed changes in the Architectural Act; Jay C. Orrell reported for the Public Action Committee; F. M. Bernham for the Entertainment Committee reported on the interesting meetings and the good attendance; H. L. Palmer, Financial Secretary, reported on the monies received during the fiscal year and Jay C. Orrell, Treasurer, reported the bank balance after expenditures.

It was with pleasure that the society awarded medals to outstanding students of the architectural department, Navy Pier Division, University of Illinois, under the able directorship of Prof. H. B. McEldowney. First Medal - Roger Mellem, 714 Greenleaf Ave., Wilmette, Ill., Second Medal - Samuel Footlik, 1163 E. 54th Place, Chicago, Ill., Third Medal - Richard Nevara, 3933 W. 66th Place, Chicago.

The evening was then given over to Mr. Max Palmer of the E. A. Hinrichs Company, the speaker of the evening and his subject "The Story of a Piece of Chinaware" was interesting, educational and entertaining. Mr. Palmer knew his subject well. He showed many color slides of fine china and illustrated how china for many special rooms was designed in harmony with the interiors. Mr. Palmer's paper as well as pictures were especially interesting to the ladies and the architects. A loud applause of thanks was extended to Mr. Max Palmer.

President Smith arose to thank the officers and directors, chairmen of committees and all who served during his administration. The report of the tellers was called for and Alexander L. Levy reported the following were elected: President,

F. M. Bernham; 1st Vice-Pres., Benjamin F. Olson; 2nd Vice-Pres., A. Reynier Eastman, (Rockford); Jay C. Orrell, Treasurer; Nathan Koenigsberg, Secretary; Herman L. Palmer, Financial Secretary; Directors for 3 years, Elmer C. Carlson and G. Harold Smith; Board of Arbitration, Hubert Burnham, Hamilton B. Dox (Peoria), Tilbert A. Johnson (Rockford), Arnold F. Kruegel (Joliet), Sigurd E. Naess, John W. Root, Leon E. Stanhope. The president declared them elected.

President Bernham took the chair and made some very fitting remarks as to his intentions to keep the society the outstanding architectural organization in the country and welcomed help from all members.

The meeting adjourned with a most enjoyable evening for all.

REPORT ON A I A CONVENTION SALT LAKE CITY, UTAH JUNE 21 to 25 1948

Reported by Walter H. Sobel

The eightieth annual convention of the AIA convened at Salt Lake City on Tuesday, June 22. It was the most successful convention, both in attendance and participation, in the history of the organization. No small credit is due to the Utah chapter and the Committee on convention arrangements, of which Mr. Raymond Ashton, Past President of the AIA was chairman.

The Board of Directors had held meetings prior to the convention proper, on June 18, 19, and 20, and had prepared a full agenda. This was submitted to the delegation at the business meetings for action and approval.

In addition to business brought before the convention, resolutions were proposed by various chapters. The Chicago delegation was very active under the able leadership of its Chairman, Albert Heino. Caucuses were held on several matters and a joint meeting was also held with representatives of the other delegations from the North Central States Region.

On Tuesday morning, June 22, the Convention was called to order by the President, Douglas William Orr. The delegates, members and guests were welcomed by the President of the Utah Chapter, Hugh C. Lewis; by the Regional Director of the Western Mountain District, George Cannon Young; and by Mayor Earl J. Glade, of Salt Lake City. The Mayor greeted the group in a friendly and humorous manner. It was the keynote to the spirit which prevailed during the entire session.

Business meetings were held each morning of the Convention, Tuesday through Friday. One of the first items of business was the award of the Fine Arts Medal, presented in absentia to John Marin, Cliffside Park, New Jersey, for distinguished work in the Art of Painting. The citation referred to Mr. Marin as "A Painter of this land's strength and beauty."

Honorary corresponding member awards were then made to the following architects of European countries:

Sir Patrick Abercrombie - England - Professor of Town Planning, Bartlett School of Architecture, University College, London, for his valuable services to the profession and to the cause of intelligent planning.

Auguste Perret - France - A leader in the development of the practical and aesthetic use of reinforced concrete for buildings of many purposes, for frankly accepting the characteristics of a new structural material without sacrificing the fundamentals of good design.

George Gray Wornum - England - has done plans for many cities, for various buildings and rooms for the SS Queen Elizabeth, is recognized for his ability and versatility.

Ivar Justus Tenghom - Sweden - One of Sweden's most distinguished architects, in creating buildings of thoroughly contemporary design, in recognition of the value of his services to the country and the influence he has exerted beyond its borders upon the profession of architecture.

Next came the nomination of officers. Only one slate was presented, and election of officers was by unanimous ballot.

The following are the officers for the coming year:

President Douglas William Orr, New Haven, Conn.

Vice President . . . Glenn Stanton, Portland, Ore.

Secretary Clair W. Ditchy, Detroit, Michigan

Treasurer Charles F. Cellarius, Cincinnati, O.

Pleasantly interspersed with the business sessions were the Seminars. These were arranged by Walter Taylor, Director of the Education and Research group of the Institute. Seminar A on Urban Planning was chairmaned by Louis Justement, FAIA. Seminar B, led by Chicago's own L. Morgan Yost, was on the topic of Dwellings. Seminar C had Kenneth C. Welch as its moderator on the subject of Retail Business Buildings. Each seminar was followed by discussion from the floor. Most of the speakers illustrated their talks with slides showing pertinent examples of work.

The first luncheon session, on Tuesday, and those also on Wednesday and Thursday, were held in the Starlite Gardens atop the Hotel Utah. Tuesday's noon seminar was on "Geographic Basis of Planning" at which Victor Roterus was the speaker. Wednesday, Robert B. Mitchell was heard on "Regional and Local Planning." Thursday was the joint meeting of Seminars A and B and was addressed by Thomas J. Kent, Jr. on the subject "The Reorganization of Metropolitan Areas."

The morning seminar on Tuesday heard Dr. C. E. A. Winslow speak on the "Physiology of Shelter." That afternoon "Aesthetics of 20th Century Architecture" was discussed by Dr. Russell Ackoff, Dr. Carl Condit, and Edgar B. Williams. B. Kenneth Johnstone was the moderator. He also conducted the evening group on "Dwellings." At this meeting "Evolution of a Design" was Alden B. Dow's topic, illustrated with excellent color movies.

Wednesday afternoon's session on "Dwellings" had D. K. Sargent and Dr. C. E. A. Winslow as speakers on the subject of "Design for Safety." At 4:00 p.m. there was a joint meeting of Seminars A and C, "Urban Planning" and "Retail Business Buildings." The topic, "The Neighborhood and Shopping Center" was well covered by Morris Ketchum, Jr., Pietro Belluschi and Professor Stanley McCandless. The evening meeting was a joint session of Seminars B and C, at which Prentice Bradley presented "Modular Design." This session was of particular interest to all practicing architects. A good deal of progress in standardization of materials was reported by the manufacturers. Also, a show of hands indicated a number of offices were using the system. Increased use by architectural offices will add impetus to the movement.

On Thursday there were two afternoon seminars - the first was "Retail Business Buildings," which was followed by "Dwellings." James Wares and C. J. Kroepel spoke on "Retail Store Design and Principles" in the earlier meeting. The Chairman read a paper for Mr. Wurdeman who was unable to attend. Mr. Wares is a member of the Chicago Chapter. Being with one of Chicago's largest department stores, he was well versed and qualified on the subject. In the latter part of the afternoon Hugh Stubbins, Jr., H. J. Kamphoefner, D. K. Sargent and Pietro Belluschi ably covered the subject "Regional Qualities in Residential Design."

On Friday morning, D. Louis Wirth spoke on "The Sociology of the Urban Community." President of the AIA, Douglas William Orr was the moderator for the discussion period of this final seminar. A summary of the Seminars, given by the respective chairmen, concluded the educational phase of the convention.

An interesting note was added by way of "Convention Impressions." This was given by a student guest and embodied the reactions of the group of guests. The comments were very constructive and should be valuable in improving future conventions.

The convention concluded with a business session. Old business was completed, a number of resolutions were placed before the convention by the various chapters through the Resolutions Committee. These and the Boards' and Treasurer's Reports were acted upon by the delegates.

One resolution brought forth a considerable amount of discussion from the floor. This resolution, by the New York Chapter, recommended that the Board of Directors award the Gold Medal of the AIA for 1949 to Frank Lloyd Wright. The resolution was adopted with the sense of the meeting in favor.

On the lighter side, the delegates and guests enjoyed the President's Reception on Wednesday evening. This was held at the Salt Lake City Country Club. The hospitality and enjoyment of all was enhanced by the setting against a backdrop of mountains, particularly lovely in the changing colors of the setting sun.

On Thursday evening the Annual Dinner was held in the Hotel Utah. At this time fellowships were conferred and the Gold Medal of the Institute was presented to Charles Maginnis. One of the highlights of the convention was Mr. Maginnis' response to the award citation. It was filled with New England humor and understatement. He is a learned elder of the architectural profession. It is fairly certain that if Frank Lloyd Wright should receive the 1949 award no similar pleasure will be afforded the convention. Dr. Adam S. Bennion, Vice President of the Utah Power and Light Co., gave an address on the subject "Architects of Freedom." He urged all to spare no effort in guarding the sacred right of Americans, Liberty.

On Friday afternoon a large number of those who attended the convention enjoyed a sight seeing tour of the Kennicott Copper Mines at Bingham. This, the largest open pit mine in North America, fairly overwhelmed its audience. The sight-seers also saw the processing plant for the ore, the Great Salt Lake and Saltair, a resort on the shore of the lake. Here some of the more energetic tested the buoyancy of salt water with a swim. A great deal of the country side was viewed on this trip, which climaxed a most interesting convention.

All who came to Salt Lake City enjoyed the hospitality of the people, the sincere friendliness of the atmosphere and the beautiful surroundings which afforded many things, among them points of early American and Mormon history. A fine modern city in a truly lovely setting, Salt Lake City is rightfully called the heart of the inter-mountain empire. The Wasatch and Oquirrh Mountains form a setting of beauty and majesty.

On Friday morning over 400 people enjoyed a hearty breakfast served and prepared out of doors. Another example of the pleasure derived by the conventioners at every hand, was the fact that such a large group arose before 6:00 a.m. in order to travel some miles up the canyon to a charming spot along a stream where every appetite was whetted by the odors and satisfied with good food and fresh air.

Speaking of settings for food, the luncheon seminars were held in the very attractive Starlite Gardens atop the Hotel Utah. The room is roofed with canvas. The perimeter to table height is filled with lovely planting and above is a large sliding glass area. This setup affords a panorama of the surrounding country including the Mormon Temple and Tabernacle, the City of Salt Lake itself, the mountains and the Great Salt Lake.

It was my impression that all who came, whether delegate, member, associate, or guest, felt that they were leaving Salt Lake City and the 80th convention of the AIA far richer for the experience. And Salt Lake City felt that all who had attended had been excellent guests.

775 HISTORIC FRENCH BUILDINGS, DAMAGED IN WAR, ARE RESTORED

Tourists visiting France this summer will find 775 ancient churches, chateaux and other historical buildings restored after suffering heavy damage in the war.

Work still is underway on some 1,000 other old buildings that were damaged. In some cases, it is likely to continue for many years.

France's historical monuments suffered many casualties. When hostilities ended, the department of the ministry of national education, whose duty it is to see to the preservation and upkeep of these relics of the past, found itself with 992 monuments severely damaged and 897 lesser casualties.

RECENT LEGISLATION AFFECTING F.H.A. OF INTEREST TO ARCHITECTS

Architects will be interested in recent legislation affecting the Federal Housing Administration operations with respect to rental housing. This legislation amends Sections 207 and 608 of the National Housing Act as indicated by the following summary.

William David Sorgatz, Chief Architect,
Northern Illinois Division, F.H.A.

SECTION 207

This Section has been amended to prescribe six categories of eligible mortgages as described below with differing maximum mortgage terms insofar as certain of these categories are concerned. All mortgages insured under Section 207 shall bear interest not exceeding 4% per annum. All eligible projects must consist of not less than twelve rentable dwelling units.

1. A mortgage executed by a Federal or state instrumentality, a municipal corporate instrumentality of one or more states, or a limited dividend corporation or redevelopment or housing corporation formed under and restricted by Federal or state laws or regulations of a state banking or insurance department as to rents, charges, capital structure, rate of return or methods of operation. Projects of such mortgagors are referred to as "Public Housing Projects."

Such mortgage may involve a principal obligation not to exceed \$50,000,000 and not in excess of 80% of the estimate of value of the project when the proposed improvements are completed, including the land, the proposed physical improvements, utilities within the boundaries of the project, architects' fees, taxes and interest accruing during construction, and other miscellaneous charges incident to construction and approved by the Commissioner. Such part of the mortgages as may be attributable to dwelling use shall not exceed \$8100 times the number of dwelling units. The mortgage shall have a maturity satisfactory to the Commissioner.

2. A mortgage with respect to a project to be constructed in a locality or metropolitan area where, as determined by the Commissioner, there is a need for new dwellings for families of lower income at rentals comparable to the rentals proposed to be charged for the dwellings in such projects.

Such mortgage may involve a principal obligation in an amount not exceeding \$5,000,000 and not in excess of 90% of the amount estimated as the value of the project when the proposed improvements are completed. Such part of the mortgages as may be attributable to dwelling use shall not exceed \$6,000 times the number of dwelling units. The term of mortgage shall not exceed forty years from the date of insurance at 1.02% level annuity.

3. A mortgage with respect to a project of a non-profit cooperative ownership housing corporation the permanent occupancy of the dwellings of which is restricted to members of such corporation.

Such mortgage may involve a principal obligation in an amount not exceeding \$5,000,000 and not in excess of 90% of the estimate of the value of the property when the proposed improvements are completed. Such part of the mortgage as may be attributable to dwelling use shall not exceed \$8100 times the number of dwelling units, except that if the Commissioner finds that the needs of the members of any such corporation could more adequately be met by per room cost limitations, the mortgage may involve a principal obligation in an amount not to exceed \$1800 per room for such part of such project as may be attributable to dwelling use. The term of the mortgage shall not exceed forty years from the date of insurance with a 2 1/2% level principal payment.

4. A mortgage with respect to a project of a non-profit cooperative ownership housing corporation whose membership consists primarily of veterans of World War II.

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materials have achieved greater and more effective usage by combining favorable properties of both the natural materials and the synthetic materials for an improved end product which, incidentally, could not have been achieved by the natural material or the plastic material, alone.

To return to "wonder plastics" and where they are - they're back in the minds of the "creative writers" who dreamed them up for an avid public.

Intelligent development and research produced many new applications and products but they came from the test tubes, the slide rule and the drawing board, rather than the pen and typewriter. In that respect, "vinyl" floor tile is a case in point. Comparable in price to the better grades of conventional floor coverings, VINYLITE plastic based tile provides the ultimate in color, styling and service. It can also be produced in roll form as well as tile. Resistant to acids, alkalies, temperature and humidity changes, its scuff- and wear-resistance is outstanding. Flooring over 15 years old and trod upon by over 20,000,000 people shows no signs of wear. Vinyl wall tile and its new compatriot in the wall tile field, polystyrene wall tile, bring the lightest weight properties of any solid tile along with dazzling color and dependable service.

Protective coatings, based upon vinyl and phenolic resins, possess properties which have led to special formulations, form marine anti-corrosion and anti-fouling coatings, whose life is twice that of conventional coatings, to protective coatings on concrete in sewage disposal plants.

Of definite importance in the coatings field are the phenolic dispersion resins which bring to the finished paints the unusually fast drying time of minutes, rather than hours.

To swing to the glamorous for the moment - this is one of the newer developments in lighting. Utilizing VINYLITE rigid extrusion strips - fabricated egg crate separator fashion, whole ceilings are made from blocks of this translucent material. When backed by fluorescent lights, the whole ceiling glows uniformly.

Elastomeric VINYLITE plastic (flexible, rubberlike) moldings are finding effective application in base board moldings while the same flexible material can be used for chair stripping. Important also is the material extruded as window seal stripping. It can also be rigid for table and cabinet moldings.

In the field of electrical insulation, we find the answer to the question, "Are plastics just substitutes?" Vinyl wire insulation has proved itself the superior insulation, dielectrically, from the standpoint of fire hazards and maintenance-wise.

We have now arrived at an application in which VINYLITE plastics excel - the upholstery field, BUT -- to a company that supplies materials for the production of both supported and unsupported sheeting for upholstery, the question is constantly asked, "Well, which is the better, supported sheeting like this, or unsupported material like this?" To such a question, asked in that manner, there can be no definite answer, as each type of material has specific properties which make it outstanding for specific applications.

The backed material is available in rolls up to 52 inches in width, offering greater pattern cutting areas and does not stretch. The unbacked material is superior in folding properties and lends itself to greater decorative possibilities.

And so it goes with practically everything. Each type of material, superior in some properties, is equalled or surpassed in others, a very natural fact because no one material is a perfect material, but, because these "tailor-made" compounds, when properly formulated for specific applications, bring the right properties needed for its most effective use. Let me repeat that, to the question, "Which is the better material?" the only answer that can be made is one that is carefully thought out and tested after all the conditions are aligned and considered for each specific use.

The scientific formulation, compounding and control which reputable manufacturers utilize in the production of materials such as these is extremely important. For instance, upholstery

like this, has been exposed for four years in outdoor furniture in year-round exposure and it retained its flexibility and showed little color change at the end of the four years. Yet, improperly compounded materials, while appearing, at the moment, to be exactly the same as materials such as this, fail miserably in a period of months. Manufacturers with a long standing reputation for carefully controlled quality and familiar with the exacting processes which are necessary to compound these materials, are the only safeguard a prospective user of these materials may rely upon. It is not just enough to smear some "plastic" on a piece of cloth or run some material through a set of calender rolls. Continuous laboratory control of all operations and a refusal to compromise with quality are vitally necessary.

Let me illustrate this point. Here is a sheet of properly compounded material. Here is another sheet of improperly compounded material. They look exactly alike. We'll put both of them in this container of ice water. After but a few seconds, here is the result. The properly compounded material flexes when struck, as it should, because years of development and research went into the formulation and compounding of the material. The other piece, although on the surface it looked the same, is, as you can see, in pieces.

The VINYLITE resin-based materials have important applications in heavy traffic rooms, public places, and where long service is a definite requirement. Wall coverings, partitioning door panels that are fire-resistant, and conventional upholstery are but three examples.

As we said in the beginning, we could not cover all the plastics that are available, but we believe the ones that we have discussed are of definite importance. They are not the only important ones, however.

We hope you understand the basic thought which lies behind this talk. It was not our purpose to "sell" you a line of materials. It was not our purpose to present a story of a plastic as the perfect material that does all things at all times.

However, it was our purpose - and we do hope we succeeded in showing the picture in the proper perspective - to describe these plastic materials to you and their performance when they are properly compounded and applied.

Limestone Centennial

The 100th birthday of commercial Indiana limestone was celebrated in Bedford, Indiana with festivities, June 14-19, 1948.

Bedford like many other towns in Monroe and Lawrence counties, the heart of the stone belt, owes much of its prosperity to one of the great geological mysteries, the formation of beds of "Oolitic" limestone.

The Oolitic beds lie within several hundred square miles, in a belt 70 miles long and averaging 2 miles wide. The limestone layer is 20 feet below the surface and 70 feet or more thick. Millions of tons of the limestone have been quarried and it is estimated that billions of tons more remain to be taken out.

The pioneer of the Indiana limestone industry was Dr. Winthrop Foote, who came to Bedford and Lawrence county in 1818, saw the stone and its possibilities and bought large tracts which are now quarried.

Representatives from all over the world joined with the Hoosiers in the program that highlighted the importance of limestone in the nation's architecture. "Cornerstones of Freedom" were presented to representatives of 21 foreign countries in a ceremony June 17. Each miniature limestone monument was inscribed with a message denoting the country's contribution to freedom. It is understood that later a 2 ton monument with the same message will be shipped to each country represented.

The flag draped town square was used for merchant and industrial displays and store windows exhibited pictures of some of the stone buildings throughout the U. S. Stone carving in progress was to be seen in the public square and conducted tours through the quarries and mills were scheduled through the week. Dancing in the evening, fireworks, a parade on Saturday climaxed the celebration.

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Such mortgage may involve a principal obligation in an amount not exceeding \$5,000,000 and not in excess of 95% of the amount of the estimate of replacement cost of the property or project on the basis of costs prevailing on December 31, 1947, for properties or projects of comparable quality in the locality in which such project is to be located. Such part of the mortgage as may be attributable to dwelling use shall not exceed \$8100 times the number of dwelling units except that if the Commissioner finds that the needs of the members of such corporation could more adequately be met by per room cost limitations, the mortgage may involve a principal obligation in an amount not to exceed \$1800 per room for such part of such project as may be attributable to dwelling use. The term of the mortgage shall not exceed forty years from date of insurance with a 2 1/2% level principal payment.

5. A mortgage with respect to a project constructed by a non-profit corporation organized for the purpose of construction of homes for members of the corporation at prices, costs or other charges comparable to the prices, costs or charges proposed to be charged to such members.

Such mortgages may involve a principal obligation in an amount not exceeding \$5,000,000 and not in excess of 90% of the estimate of value of the property when the proposed improvements are completed.

Such part of the mortgage as may be attributable to dwelling use shall not exceed \$8100 times the number of dwelling units except that if the Commissioner finds that the needs of the members of such corporation could more adequately be met by per room cost limitations, the mortgage may involve a principal obligation in an amount not to exceed \$1800 per room for such part of such project as may be attributable to dwelling use.

A mortgage of this character may include provisions for the release from the lien of any of the improvements and land upon which they are located upon conditions to be determined by the Commissioner at the time of the release. The term of the mortgage shall not exceed forty years from date of insurance at a 2 1/2% level principal payment.

6. A mortgage with respect to all other eligible projects consisting of not less than twelve rentable dwelling units may involve a principal obligation not exceeding \$5,000,000 and not in excess of 80% of the estimate of value of the property when the proposed improvements are completed, including the land, the proposed physical improvements, utilities within the boundaries of the property or project, architects' fees, taxes and interest accruing during construction, and other miscellaneous charges incident to construction and approved by the Commissioner: Provided, that such mortgage shall not exceed the amount of the estimate of cost of the completed physical improvements on the property or project, exclusive of public utilities and streets and organization and legal expenses. Such part of the mortgage as may be attributable to dwelling use shall not exceed \$8100 times the number of dwelling units. The mortgage shall have a maturity satisfactory to the Commissioner.

The Federal National Mortgage Association has been authorized to purchase mortgages insured under Section 207 on rental housing projects for lower income families and on housing constructed by cooperatives, including veterans' cooperatives.

SECTION 608

Section 608, which previously expired April 30, 1948, has been reinstated through March 31, 1949, and insurance is authorized pursuant to commitments to insure issued on or before said date. The amendments provide as an additional condition of eligibility that the mortgagor must certify under oath that: (1) in the selection of tenants there will be no discrimination by reason of the fact that there are children in the family, and (2) the property will not be sold while the mortgage insurance is in effect unless the purchaser files with the Administration a certification under oath that there will be no discrimination in the selection of tenants by reason of the fact that there are children in the family. A violation of the foregoing is a misdemeanor punishable by a fine not in excess of \$500.

Under the amendments, insured mortgages are limited to an amount not in excess of 90% of the estimate of replacement cost of the property on the basis of costs prevailing on December 31, 1947, or present costs, whichever is lesser. The \$1500 to \$1800 per room maximum mortgage limitation has been changed to a limitation of \$8100 times the number of dwelling units. Maximum interest rate remains at 4% per annum.

Inflation

"Most labor leaders are well aware that when pork chops and wage earners get into a race, the wage earner always loses. He is slower on his feet than a pork chop."

Charles Luckman.

Announcements

Edgar Martin announces the removal of his office to 206 S. Michigan Ave., Chicago.

Mortimer Hill Hawkins has opened his office for the general practice of architecture in suite 604 Elgin Tower, Elgin, Ill. Raymond J. Lindblad is now located at 517 Leach Ave., Joliet, Ill.

Leon E. Stanhope has consolidated his Chicago and Evanston offices at 800 Davis St., Evanston, Ill.

Preston J. Bradshaw is now located at 1800 Olive St., St. Louis 3, Mo.

Herman H. Bruns has moved his office to 6253 S. Woodlawn Ave., Chicago.

Raymond G. Berquist and Joseph G. Durrant announce that they have formed a partnership for the general practice of architecture and their new address is B & I Building, Dubuque, Iowa.

About one hundred associates and friends of Jay C. Orrell gathered for a testimonial dinner August 17 in the club rooms of the Chicago Bar Association to honor him on the occasion of his retirement from the Chicago Board of Education department of architecture. Mr. Orrell completed forty years with the Board and was assistant architect. He was presented with an illuminated testimonial and a beautiful traveling bag by his colleagues. Mr. Orrell will make his home in Tucson, Arizona and intends to keep busy with his hobbies and some practice of architecture.

He was treasurer of the Illinois Society of Architects from which position he resigned at the last meeting of the board.

Wybe J. van der Meer died May 17, 1948 at his home in Aurora, Ill. He was born in Friesland in the Netherlands, Europe, June 18, 1883 and came to the U.S. when a young man. He was registered in Illinois in 1919 and practiced extensively. Among his work are St. Vincent's Orphanage in Freeport, Ill., Marmion and Madonna high schools in St. Charles, Ill., St. Joseph Hospital in Aurora, Ill., the Muldoon and St. Thomas high schools and the Chancery in Rockford, Ill., and Sacred Heart Seminary in Geneva, Ill. Mr. van der Meer will be buried in St. Nicolaasga, Friesland and will be escorted to his final resting place by his wife and son. He was a member of the Society since 1919.

William Kinne Fellows died of a skull fracture August 8, 1948 after a fall in his home. He was born in Winona, Minnesota, September 3, 1870. He was graduated from Columbia University in 1894, where he won first mention for the McKim scholarship and the Schermerhorn fellowship, which gave him 18 months of travel and study in Europe. He was instructor of design at the Chicago School of Architecture for six years, a fellow of the American Academy in Rome and a fellow of the American Institute of Architects. In 1913 he became a partner of John L. Hamilton and the firm name was Hamilton and Fellows which later became Hamilton, Fellows and Nevved and later was changed when Mr. Fellows retired in 1936.